^{187}Re(p,d) 2009Wh01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. C. Batchelder and A. M. Hurst, M. S. Basunia	NDS 183, 1 (2022)	1-Mar-2022

Target $J^\pi=5/2^+$.

E(p)=21 MeV, 270 nA; beam provided by the tandem Van de Graaff accelerator at LMU and TU Munich; ^{187}Re target of thickness 70 μg/cm^2 backed by 8.2 μg/cm^2 of carbon. The deuteron ejectiles were analyzed by the Q3D magnetic spectrograph. The focal plane detector comprises a plastic scintillator. Blocked BCS calculations.

Configuration assignments and K^π values from 2009Wh01 except where noted.

^{186}Re Levels

E(level)†	J$^\pi$&	S‡a	E(level)†	J$^\pi$&	S‡a
0.0b	1$^-$	153 *3*	736.5h *10*	(5$^-$)	19.9 *13*
59.0b *5*	(2)$^-$	218 *4*	753.9 *10*	(2$^-$,3$^-$)	47 *3*
99.6d *5*	(3)$^-$	1000 *8*	762.1 *15*	(1$^-$,2$^-$,3$^-$)	4.5 *11*
146.7b *5*	(3)$^-$	303 *5*	774.2 *15*		5.8 *25*
173.9c *5*	(4)$^-$	414 *5*	791.8 *10*	(1$^-$)	67 *3*
180.1g *5*	(6)$^-$	468 *5*	796.6 *10*	(≤3)	102 *4*
210.5e *5*	(2)$^-$	709 *22*	813.6 *15*	(1$^-$)	5.8 *15*
268.8b *5*	(4)$^-$	179 *9*	818.6 *10*	(2$^-$,3$^-$)	37 *4*
273.5d *5*	(4)$^-$	657 *35*	857.0 *10*	(2$^-$,3$^-$)	45 *3*
317.4#c *5*	(5)$^-$	406 *16*	861.2 *10*	(2$^-$,3$^-$)	35.1 *23*
317.4#h *5*	(1)$^-$	406 *16*	871.0 *10*	($^-$)	14.0 *14*
322.4e *5*	(3)$^-$	671 *13*	888.8@ *15*	(4$^-$)&(1$^-$,2$^-$,3$^-$)	22.4 *25*
378.6h *5*	(2)$^-$	161 *6*	895.3 *15*	(2$^-$,3$^-$,4$^-$)	17.2 *22*
414.9 *5*		60 *4*	902.4 *15*	(2$^-$,3$^-$)	32 *3*
418.7b *5*	(5)$^-$	35 *3*	913.5 *15*	(2$^-$,3$^-$)	23 *3*
425.4 *5*	(2$^+$,3$^+$,4$^+$)	16.7 *15*	926.8 *15*	(2$^-$,3$^-$)	5 *3*
463.3d *5*	(5)$^-$	118 *3*	929.6 *15*	($^-$)	9 *4*
470.0#h *5*	(3)$^-$	363 *6*	937.4@ *15*	(1$^-$)&(2$^-$,3$^-$)	9 *4*
470.0#e *5*	(4)$^-$	363 *6*	944.5 *15*	(2$^-$,3$^-$)	10 *4*
496.7c *10*	(6)$^-$	8.0 *12*	953.3 *20*		1.2 *21*
498.9j *10*	(4)$^+$	4.5 *12*	973.8 *15*	($^-$)	25 *8*
533.8 *15*	(4)$^-$	53 *5*	982.9 *15*		11 *4*
549.5 *10*	($^+$)	2.2 *8*	988.8 *15*		14 *5*
560.4i *10*	(5)$^+$	15.6 *20*	1003.2 *20*	(2$^-$,3$^-$,4$^-$)	18 *9*
563.1k *10*	(6)$^+$	5.8 *11*	1007.4 *20*		14 *5*
578.3f *10*	(2$^-$)	20.0 *16*	1016.9 *20*	(2$^-$,3$^-$,4$^-$)	5 *5*
589.2h *10*	(4$^-$)	27.9 *18*	1019.7 *20*	(1$^-$,2$^-$,3$^-$)	14 *9*
606.8 *10*		3.8 *10*	1027.2 *20*		4 *3*
610.1 *10*		2.7 *6*	1039.6 *5*	(2$^-$,3$^-$,4$^-$)	253 *5*
646.8e *10*	(5$^-$)	70 *3*	1050.7 *15*		57 *6*
681.4 *10*	(2$^-$,3$^-$)	51 *3*	1054.1 *10*	(1$^-$,2$^-$,3$^-$)	116 *3*
686.5f *15*	(3$^-$)	8.0 *18*	1070.6 *15*	(2$^-$,3$^-$)	12.3 *18*
690.3#d *10*	(6$^-$)	34.9 *23*	1101.9 *5*	(2$^-$,3$^-$)	852 *8*
690.3# *10*	(1$^-$)	34.9 *23*	1157.1 *10*	(2$^-$,3$^-$,4$^-$)	21.0 *22*
705.7 *15*		7.1 *9*	1163.1 *5*	(1$^-$)	452 *22*
710.2 *15*		9.0 *11*	1172.3 *5*	($^-$)	762 *36*
722.4 *10*		17.0 *13*	1196.7 *10*	(2$^-$,3$^-$)	37.9 *24*
728.2 *15*		4.3 *8*	1213.9 *10*		213 *8*

Continued on next page (footnotes at end of table)

^{187}Re(p,d) 2009Wh01 (continued)

^{186}Re Levels (continued)

E(level)†	Jπ&	S‡a	E(level)†	Jπ&	S‡a
1219.5 *10*	(1⁻)	60 *7*	1512.7 *20*		7.9 *15*
1229.7 *15*		11 *3*	1520.5 *20*		12.6 *16*
1239.8 *10*		159 *30*	1529.4 *20*	(2⁻,3⁻)	24.6 *22*
1266.4 *10*		41 *8*	1545.1 *20*	(⁻)	7.3 *14*
1298.1 *15*	(1⁻,2⁻,3⁻)	9.3 *10*	1587.1 *20*		15.8 *20*
1306.4 *10*	(⁻)	35.9 *20*	1601.4 *20*		33 *6*
1326.5 *10*		12.8 *14*	1613.8 *20*		18 *4*
1341.6 *20*		4.3 *10*	1633.8 *20*		22 *3*
1349.1 *15*		18.5 *16*	1646.0@ *20*		23.5 *23*
1354.0 *15*	(2⁻,3⁻)	7.8 *12*	1660.6 *20*	(⁻)	11.7 *9*
1369.2 *15*		11.2 *13*	1694.9 *20*	(2⁻,3⁻)	7.7 *17*
1375.4 *15*	(1⁻,2⁻,3⁻)	5.5 *12*	1707.6 *20*		11.8 *14*
1390.5 *15*		14.2 *15*	1717.6 *15*	(2⁻,3⁻,4⁻)	46 *5*
1404.3@ *10*	(1⁻)&(2⁻,3⁻,4⁻)	21.2 *18*	1742.4 *20*		31.4 *23*
1421.7 *10*		24.9 *19*	1768.4 *20*		16 *5*
1434.2 *20*		22.9 *19*	1776.4 *20*		16 *4*
1448.6 *20*	(1⁻,2⁻,3⁻)	19.6 *17*	1907.3 *20*		16.9 *18*
1458.7 *20*	(2⁻,3⁻)	7.7 *12*	2000 *4*		11.6 *24*
1472.7 *20*		24.8 *17*	2321 *4*		29 *3*
1485.6 *20*		5.3 *11*	2361 *4*		65 *5*

† From 2009Wh01.
‡ Label=Intensity.
# Possible unresolved doublet. Total feeding intensity of the doublet is given with each component of the doublet.
@ Possible unresolved doublet (2009Wh01).
& Quoted by 2009Wh01.
[a] Population intensity in ^{187}Re(p,d). Values are renormalized by the evaluators to 1000 for the 99.6-keV level.
[b] Band(A): $K^\pi=1^-$, π 5/2[402]-ν 3/2[512].
[c] Band(B): $K^\pi=4^-$, π 5/2[402]+ν 3/2[512].
[d] Band(C): $K^\pi=3^-$, π 5/2[402]+ν 1/2[510].
[e] Band(D): $K^\pi=2^-$, π 5/2[402]-ν 1/2[510].
[f] Band(E): $K^\pi=2^-$, π 5/2[402]-ν 9/2[505].
[g] Band(F): $K^\pi=6^-$, π 5/2[402]+ν 7/2[503].
[h] Band(G): $K^\pi=1^-$, π 5/2[402]-ν 7/2[503].
[i] Band(H): $K^\pi=3^+$, π 5/2[402]-ν 11/2[615]. Assignment from Adopted Levels and quoted by 2009Wh01.
[j] Band(I): $K^\pi=(3)^+$, π 9/2[514]-ν 3/2[512]. Assignment proposed by 1973Gl06 and quoted by 2009Wh01.
[k] Band(J): $K^\pi=6^+$, π 9/2[514]+ν 3/2[512].

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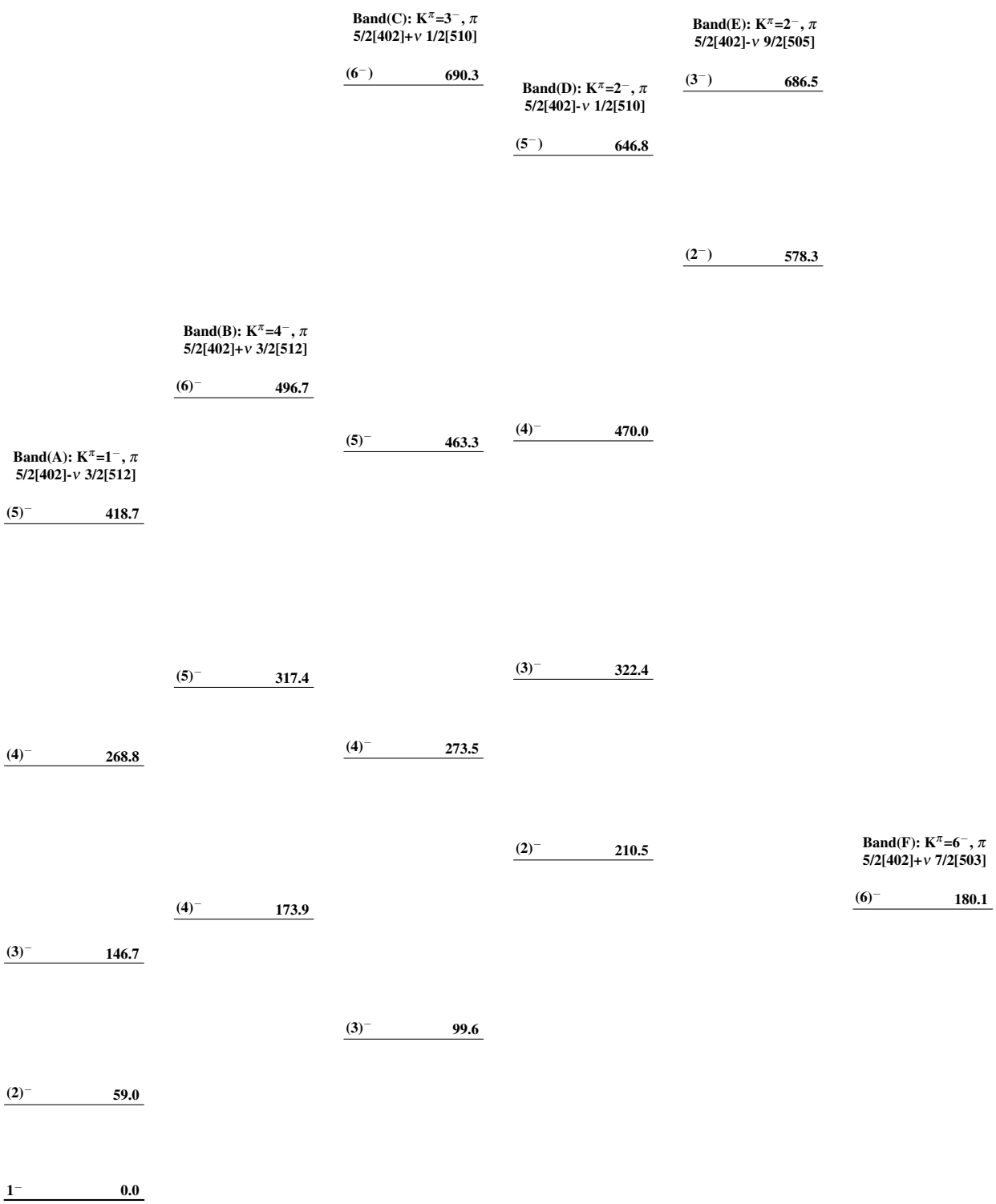

$^{186}_{75}Re_{111}$

^{187}Re(p,d) 2009Wh01 (continued)

Band(G): $K^{\pi}=1^{-}$, π 5/2[402]-ν 7/2[503]

(5^{-}) 736.5

(4^{-}) 589.2

Band(H): $K^{\pi}=3^{+}$, π 5/2[402]-ν 11/2[615]

$(5)^{+}$ 560.4

Band(J): $K^{\pi}=6^{+}$, π 9/2[514]+ν 3/2[512]

$(6)^{+}$ 563.1

Band(I): $K^{\pi}=(3)^{+}$, π 9/2[514]-ν 3/2[512]

$(4)^{+}$ 498.9

$(3)^{-}$ 470.0

$(2)^{-}$ 378.6

$(1)^{-}$ 317.4

$^{186}_{75}Re_{111}$